# GEOGRAPHIC SCHOOL BULLETINS

*Published Weekly by*

THE NATIONAL GEOGRAPHIC SOCIETY

(The National Geographic Society is a scientific and educational Society, wholly altruistic, incorporated as a non-commercial institution for the increase of geographic knowledge and its popular diffusion. General Headquarters, Washington, D. C.)

## Contents for Week of December 15, 1941. Vol. XX. No. 23.

1. Rostov and Sea of Azov Lie Athwart Road to Caucasus
2. Pesky Mistletoe Makes Christmas Merry and Mischievous
3. Mississippi Traffic Makes Travel History
4. Islands That Come and Go
5. India, A War Chest of the British Empire

NOTE TO TEACHERS—Because of Christmas holidays, the GEOGRAPHIC SCHOOL BULLETINS will not be published for two weeks, resuming on January 5, 1942.

*Photograph by Herford Tynes Cowling*

**NO PENCIL, NO PAPER, BUT PLENTY OF KASHMIR ABC'S**

**Mountainous Kashmir in the Himalayas, largest of the Indian States under native princes, now has compulsory education for boys in some areas. They learn to write with cornstalk pens and chalky water, making white letters on a wooden board. Kashmir, with the rest of India, now has one Agent-General in the United States (Bulletin No. 5).**

HOW TEACHERS MAY OBTAIN THE BULLETINS

The Geographic School Bulletins are published weekly throughout the school year (thirty issues) and will be mailed to teachers in the United States and its possessions for one year upon receipt of 25 cents (stamps or money order); in Canada, 50 cents. Entered as second-class matter, Jan. 27, 1922, Post Office, Washington, D. C., under act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in section 1103, Act of Oct. 3, 1917, authorized Feb. 9, 1922. Copyright, 1941, by National Geographic Society, Washington, D. C. International copyright secured. All rights reserved. Quedan reservados todos los derechos.

UMI

# GEOGRAPHIC SCHOOL BULLETINS

*Published Weekly by*

THE NATIONAL GEOGRAPHIC SOCIETY

(The National Geographic Society is a scientific and educational Society, wholly altruistic, incorporated as a non-commercial institution for the increase of geographic knowledge and its popular diffusion. General Headquarters, Washington, D. C.)

## Contents for Week of December 15, 1941. Vol. XX. No. 23.

1. Rostov and Sea of Azov Lie Athwart Road to Caucasus
2. Pesky Mistletoe Makes Christmas Merry and Mischievous
3. Mississippi Traffic Makes Travel History
4. Islands That Come and Go
5. India, A War Chest of the British Empire

NOTE TO TEACHERS—Because of Christmas holidays, the GEOGRAPHIC SCHOOL BULLETINS will not be published for two weeks, resuming on January 5, 1942.

*Photograph by Herford Tynes Cowling*

**NO PENCIL, NO PAPER, BUT PLENTY OF KASHMIR ABC'S**

**Mountainous Kashmir in the Himalayas, largest of the Indian States under native princes, now has compulsory education for boys in some areas. They learn to write with cornstalk pens and chalky water, making white letters on a wooden board. Kashmir, with the rest of India, now has one Agent-General in the United States (Bulletin No. 5).**

HOW TEACHERS MAY OBTAIN THE BULLETINS

The Geographic School Bulletins are published weekly throughout the school year (thirty issues) and will be mailed to teachers in the United States and its possessions for one year upon receipt of 25 cents (stamps or money order); in Canada, 50 cents. Entered as second-class matter, Jan. 27, 1922, Post Office, Washington, D. C., under act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in section 1103, Act of Oct. 3, 1917, authorized Feb. 9, 1922. Copyright, 1941, by National Geographic Society, Washington, D. C. International copyright secured. All rights reserved. Quedan reservados todos los derechos.

UMI

# GEOGRAPHIC SCHOOL BULLETIN

*Published Weekly by*

**THE NATIONAL GEOGRAPHIC SOCIETY**

**(Founded in 1888 for the Increase and Diffusion of Geographic Knowledge)**

**General Headquarters, Washington, D. C.**


## Rostov and Sea of Azov Lie Athwart Road to Caucasus

THE German drive to the Caucasus, Russia's rich mountainous southland, met a setback at Rostov. After an eastward push past the Crimea and along the northern shores of the Sea of Azov, at the gates of Rostov the German forces stood on the threshold of Russia's important treasure chest of grains and minerals in the Caucasus to the south. The value of this strategic region is reflected in the fierceness with which Russian troops defended it, launching a counterattack that drove back the German invaders.

The Sea of Azov is a shallow northern arm of the Black Sea. The Crimean Peninsula makes it a separate body of water by curving around it on the west and south, virtually landlocking it.

The only exit into the Black Sea from the Sea of Azov lies through the narrow, dredged channel of Kerch Strait. The Don River empties into the vest-pocket sea on the northeast.

### Shallow Sea Freezes in Winter

Diagonally from the Don to the Crimea, the greatest length of the sea is about 225 miles; its east-west width is about 150 miles.

Shipping there is hampered by the shallowness of the water and from late November to mid-April by ice.

On the west, a long strip of mud and sand separates the Sea of Azov from Crimean lagoons and marshes known as the Sivash, or "Putrid Sea." From its briny water are extracted valuable mineral salts.

Beyond the high, flat northern coast stretches the mining and industrial region of the Donets basin, which fills an important rôle in Soviet economy. Surplus coal and manufactured goods from the rapidly growing cities normally are shipped from Sea of Azov ports.

### Don Cossacks Preferred Soldiering to Paying Taxes

Picturesquely situated 25 miles inland from the mouth of the Don River is the important commercial city of Rostov.

Besides possessing a fishing industry, iron smelters, and flour mills, it is a market for the wheat and other farm products of the fertile land between the Don and the Caucasus Mountains to the south. From the steppes of that region come the Don Cossacks, renowned horsemen and daring soldiers.

Through Rostov runs the northern one of two long oil pipe lines that cross the Caucasus Isthmus from sea to sea, bringing oil from Caucasus wells to dozens of Soviet industrial and shipping centers.

The nearest of Rostov's petroleum-producing neighbors is the Krasnodar Territory, whose refining center is at the city of Krasnodar, only about 175 miles to the south.

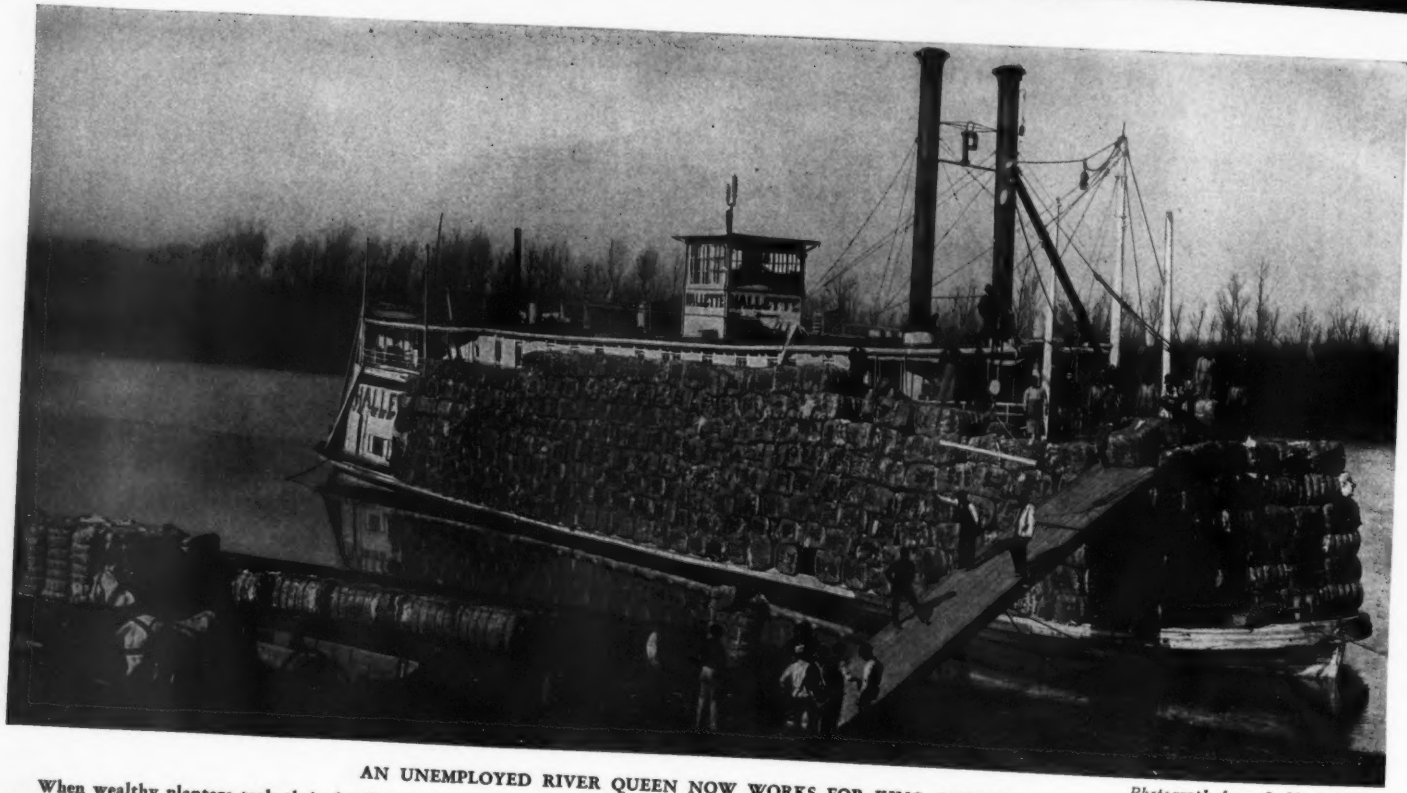
Before the German invasion, growing Rostov had a population of more than half a million people, compared to 308,000 in 1926.

Often described as one of the best planned of Soviet communities, the city is relatively modern. In the 18th century its site was occupied by a fortress, which saw heavy action during Russian-Turkish battles of that period.

The foundations of modern Rostov were laid in 1780, but it was not until the middle of the 19th century that the city developed commercially, after the estab-



UMI



**AN UNEMPLOYED RIVER QUEEN NOW WORKS FOR KING COTTON**

*Photograph from J. Mack Moore*

When wealthy planters took their families for a month's vacation cruise on the 19th century "floating palace," the Mississippi steamboat flaunted its glass-prism chandeliers, upholstered armchairs, landscape painted in oil on every stateroom door, mirrors surrounding the 250-foot saloon, deep-pile rugs. But most of Ol' Man River's passenger traffic has been lured away by railroads and airplanes. Steamboats now pile their decks with freight. Most of the eleven States for which cotton is a leading money crop have a Mississippi frontage, so that the river is in touch with a little less than half the cotton raised in the world. Now, because of the river's contribution to irrigation, more cotton grows west of the Mississippi than east of it. The cotton cargo being unloaded from the *Hallette* at Vicksburg comes from the old Jefferson Davis plantation on Palmyra Island, one of the islands created by the mighty river (Bulletin No. 3).

# GEOGRAPHIC SCHOOL BULLETIN

*Published Weekly by*

**THE NATIONAL GEOGRAPHIC SOCIETY**

**(Founded in 1888 for the Increase and Diffusion of Geographic Knowledge)**

**General Headquarters, Washington, D. C.**


## Pesky Mistletoe Makes Christmas Merry and Mischievous

WHEN Christmas arrived on the human calendar, mistletoe was there waiting for it.

During the pre-Christian winter festival of the old Roman Saturnalia, mistletoe boughs hung among the holly in temples and homes, to make an inviting bower in which forest spirits could take refuge from winter cold.

All Gaul venerated the plant 2,000 years ago, as Romans observed in France and England. One of the solemn rites in the Druids' sacred oak groves was the gathering of the mistletoe that ushered in the New Year. A procession of white-robed priests led the way, and the high priest cut down the clusters of pearly-white berries with a golden sickle. The grisly sacrifice of two white bullocks was supposed to follow. These mistletoe rites inspired a scene in Bellini's opera, *Norma*.

### Pagan Mistletoe Once Banned from Church Decoration

The thousand-year-old Eddas of Iceland and Norway give mistletoe the villain's rôle in the death of Balder the Sun God. The goddess Frigga, they relate, extracted from fire, water, earth, air, and every living thing a promise not to harm Balder, her son—but forgot to ask an insignificant little clump of mistletoe growing outside Valhalla's gate. Balder's enemy, Loki, made an arrow of mistletoe which slew the Sun God and brought winter to the world.

Because of the pagan company it had kept before, early Christians tried for a time to ban mistletoe along with holly from the Christmas greens used for their festival decorations. But they winked at the custom of kissing under sprigs of the white berry clusters, possibly welcoming kisses as a vast improvement over sacrifices. So mistletoe was accepted as the green wand that turned Merry Christmas into Merry Kissmas.

One reason for the half-holy awe with which the ancients regarded the shrub was its carefree, irresponsible success in living on its forest brethren. Mistletoe is an airy parasite, never descending to touch the earth with its roots but stealing the sap of any unwilling tree "host" to which it attaches itself. The Greek name for the American variety of the plant, *Phoradendron,* means "tree thief," in consideration of its lifelong habit of purloining its food from the sap supply of others.

### Planted and Harvested by Hungry Birds

A polite fable grew up in England to account for this bad habit, with the explanation that the cross on which Jesus was crucified was made of mistletoe wood. Forever after, the mistletoe was accursed and dwarfed, a forest outlaw that lived only by preying on others.

Oblivious to the ideas and antics of humans, birds are the husbandmen that sow and reap the mistletoe harvest. Fondness for gobbling the pearly berries won Europe's mistle-thrush its name. Mockingbirds and waxwings, bluejays and redbirds and blackbirds pounce on the glowing, translucent, amber-white berries—but find them very sticky. The gelatine-like, viscous pulp of the berry earned the mistletoe its Latin name, *Viscum,* "bird-snarer." Birds scrape off the sticky white globule from beak or claw on a tree branch. The pulp glues the berry to the branch until the seed sprouts, sending a delicate fibrous "sinker" through the tree's bark to the moist interior. Then "hold-up man" mistletoe steals all the sap that comes within reach, starving the branch beyond and slowly dwarfing its size.



UMI

lishment of port facilities. Its location on through railway lines from the Caucasus to northern cities of European Russia made Rostov one of the leading freight centers of the Soviet Union.

In addition to being an important railway junction, Rostov is in normal times a busy river port (illustration, below). Set high on the banks of the Don, it is the economic outlet of the long untamed country of the Don Cossacks, famed for their horsemanship and whirling, kicking dagger dances. Like the Cossacks of other localities, the men of the Don are well known for their fighting qualities. In the days of the Tsars, they formed a more or less privileged group, giving military service in place of taxes. The life and character of the Cossacks have been a favorite theme in Russian literature.

### Largest Grain Farm in World in Northern Caucasus

From the broad lowlands between the Don and the Caucasus, normally come many of the raw materials on which the industries of Rostov are based—animal and dairy products, wheat, barley, corn, soy beans, olives, fruits, tobacco, and sunflowers, whose seeds are useful for their oil.

Rostov in recent years developed a heavy industry which provided agricultural machinery for use on near-by collective farms. A mechanized "Giant Farm" of the Northern Caucasus, the Russians claim, is the largest "grain factory" in the world.

Note: The Society's Map of Europe and the Near East, issued with the May, 1940, number of the *National Geographic Magazine*, will give the location of Rostov and the Sea of Azov in relation to the pipe lines of the Caucasus and the arterial railroads of southern Russia.

See also: "Russia of the Hour" in the *National Geographic Magazine* of November, 1926.

**Bulletin No. 1, December 15, 1941.**

*Photograph by "Russ-Photo"*

**PAST WATERMELONS AND "WATER BABIES," THE DON FLOWS GENTLY HOME TO THE SEA OF AZOV**

**The industrial city of Rostov, 25 miles inland from where the Don River flows into the shallow Sea of Azov, is a peacetime shipping point for farm produce from the Don valley and the fertile steppes stretching spaciously southward to the Caucasus. In these southern reaches of the U.S.S.R. the climate is mild enough for watermelons to grow in abundance, such as those stacked on the river barge (left), but the most important crop is wheat. Families of boatmen can thriftily combine a swim with a bath beside the boat.**

# GEOGRAPHIC SCHOOL BULLETIN

*Published Weekly by*

**THE NATIONAL GEOGRAPHIC SOCIETY**

**(Founded in 1888 for the Increase and Diffusion of Geographic Knowledge)**

**General Headquarters, Washington, D. C.**

## Mississippi Traffic Makes Travel History

STEAMBOAT comin' round the bend may not be a steamboat any more. Likely as not, it has a Diesel engine instead of a steam engine.

A pioneer new packet boat plying the high, salt-touched waters near the Mississippi's mouth has a small, tidy funnel replacing the belching smokestacks of former times, and its paddle wheel has gone to join the buggy. Powered by Diesel engine, this trim craft opens a new travel chapter in the biography of Ol' Man River, as successor to silent birch bark canoes, log-walled flatboats, and white steamboat stern-wheelers gaudy as a wedding cake.

### First Mississippi Steamboat Carried Sails Too

Combining with the Missouri to form the 3,988-mile longest river system in the world, the Mississippi has always offered generous rewards for the improvements in transportation that might conquer its treacherous curves with greater speed and safety. The venerable old "Father of Waters" drains two-fifths of the United States, thus binding 19 States together with the many waterway links of its tributaries. Once the Mississippi valley meant spacious unsettled acres for pioneers; now its industrial cities manufacture about half the output of U. S. factories.

To attain the pot of gold always assumed to be at the end of a Mississippi voyage, white men first borrowed the Indians' vessels. In the northern part of the valley where birch trees grew, any riverside forest became a shipyard for building canoes—bark sewed with tough larch or balsam roots over a cedar frame. Southern boatmen burnt hollows in logs and made pirogues sometimes 30 to 50 feet long. The white man's first improvement was the clumsy "bateau," flat-bottomed like a skiff and built of planks, moved by long oars called sweeps.

While these splinter-size craft bobbed on the great river as light and fragile as a leaf, the Connecticut Yankee inventor, John Fitch, wrote to the Continental Congress that his "machine for rowing a boat" by means of steam was "adapted specially to the Waters of the Mississippi." Congress said nothing, and his assistant remarked, "What a pity he is crazy!" But fourteen years after Fitch committed suicide in the lonely Kentucky wilderness, the first steamboat to travel the Mississippi chugged from Pittsburgh to New Orleans in less than three months, arriving in January, 1812. This ancestral vessel, the *New Orleans,* built by Robert Fulton and Nicholas I. Roosevelt, was not as large as the largest airplanes now being built, but she carried two masts for sails to reinforce her feeble steam engine.

### "Flivvers of the River" Helped Win the West

In 1817, when James Monroe moved into the newly renovated White House, there were only a dozen steamboats on the whole Mississippi. Then the United States started moving west—by water. Before the days of the covered wagon, the river boats of the Mississippi system were the vehicles by which the nearer west was won. An estimated million migrants floated down the eastern tributaries of the Father of Waters and toiled up the western ones.

This water-borne migration moved by flatboat, keelboat, barge, and ark. Keelboats, up to 75 feet long, were slender enough for rapid downstream progress with the aid of sweeps, as well as slow poling upstream. The slower arks and flatboats were family boats. Their timber usually went into cottages and chicken coops of new wilderness homes. The ark was a 100-foot raft with sides, having a cabin



UMI

In time the sap-sucking parasite may kill its host, but first the tree-thief will thrive for possibly 40 years on bootlegged nourishment.

Some botanists believe that mistletoe originated as a "sponging" poor relation of honeysuckle, possibly in Asia, and spread from there around the world. Now in many orchard and timber areas the tree-robber is also a killer, threatening alike the giant eucalyptus trees of Australia, the Douglas firs of the U. S. Northwest, the Himalayan apricot orchards, the almond trees of Italy.

The mistletoe family includes a fragrant flowered variety, another that flaunts gay berries varying from amber to red in color, and a third whose berries are as warty as miniature golf balls. One species, cautiously unwilling to depend on birds, has berries that pop and spatter the seeds over surrounding branches.

The mysterious habits of mistletoe inspired in the Druids a belief that it healed all sickness, with special power against epilepsy and vermin. In rural England "mistletoe tea" was once considered a cure for St. Vitus' dance. In Sweden and the Tyrol the parasite was valued as a divining rod, pointing to buried treasure, and in Switzerland as a protection against being struck by lightning. African tribes of Gambia still consider it a charm against wounds in battle, and it is venerated also by the Ainu people, the white tribes of northern Japan.

Note: For a discussion of the tradition of Christmas celebrations and holidays, see the following GEOGRAPHIC SCHOOL BULLETINS of previous years: "Santa Claus's International Family," December 16, 1940; "Christmas Holly Has Private Life, Too," December 18, 1939; "Christmas Candles Brighten Old Customs, Old Business," December 19, 1938; "Christmas Candy Gives New Sweets to Old Sweet Tooth," December 20, 1937; and "Christmas Is Permanently on the Map," December 21, 1936.

**Bulletin No. 2, December 15, 1941.**

*Photograph by Maynard Owen Williams*

**MISTLETOE FROM FRANCE, MORE ABUNDANT THERE BUT LESS ADMIRED, WAS SOLD TO ENGLAND**

**Much of the Christmas supply of mistletoe's whitish berry clusters on sale in English markets used to come from France, chiefly from the apple orchards of Normandy. Although ancient Druids on both sides of the Channel once held the parasite in high esteem, the tradition lost its hold earlier in France. This bountiful growth of the parasitic "tree thief" was photographed on a hillside overlooking the town and hilltop château of Montespan, in the foothills of the Pyrenees. While the tree is bare in winter, mistletoe is evergreen. Because it was so mysteriously different, puzzled Britons named it *mistle-tan*, "the different twig." True mistletoe so rarely grows on oaks that scholars suspect the ancient Druids of having artificially planted the parasite in their sacred oak groves to imitate a miracle.**

# GEOGRAPHIC SCHOOL BULLETIN

*Published Weekly by*

**THE NATIONAL GEOGRAPHIC SOCIETY**

**(Founded in 1888 for the Increase and Diffusion of Geographic Knowledge)**
**General Headquarters, Washington, D. C.**

## Islands That Come and Go

EACH year brings its quota of islands that suddenly appear, to the bewilderment of sailors, or disappear, with tragic losses to inhabitants. This year the phenomenon has been reported from El Salvador, where an island off the coast of Central America has made news by sinking gradually, menacing its 500 inhabitants.

El Salvador has had somewhat similar experiences in the past. Ilopango, a crater lake and popular resort not many miles from the capital city, San Salvador, has at times spawned numerous islands which later disappeared from the lake's 25-square-mile surface.

### Submarine Volcanoes Are "Elevators" That Raise and Lower Isles

Since Plato first wrote of the sinking of the legendary land of Atlantis, many islands have been swallowed up as a result of violent undersea disturbances.

About 25 miles off the south coast of Sicily, Graham's Island, or Isle of Julia, was a volcanic growth reported to have made several appearances. In 1831 it rose and spread to a four-mile circumference. A sea captain raised the British flag above it before the lava cooled. The King of Naples contested the British claim. But, before the sovereignty over the island was settled, it became a small mound, then a mere oblong reef, and in a few years the ocean, hundreds of feet deep, flowed freely over the site.

Falcon Island, in the Tonga group, in the South Pacific, is another intermittent island. It has appeared and disappeared twice in the past century. Each time this volcanic creation appeared, an official party planted a flag on the new-born land, claiming it in the name of the King of Tonga. By 1885 its several square miles had risen to an altitude of 300 feet.

### Calamities Accompany the Sinking Islands

Tragic was the volcanic disappearance of Krakatau, an island in Sunda Strait between Java and Sumatra. It had long been the site of an inactive volcano, but in 1883 the volcano blew up, snuffing out 30,000 lives and leaving little land. The sound of the explosion was reported as having been heard 3,000 miles away, hours after the catastrophe.

In the volcano-rich Pacific, islands come and go with a suddenness that is the despair of map-makers. One of these was little Sarah Ann, an inconspicuous dot that appeared on some maps of the mid-Pacific in 1937. When astronomers plotted in advance the path of the 1937 eclipse of the sun, Sarah Ann Island appeared to be on the path and appealed to scientists as one of several convenient spots from which to observe the eclipse. But a check of the most recent charts showed that the island wasn't there any more.

The volcanic chain of Aleutian Islands, fringing the Pacific on the north, also has its whimsical isles. One of them was Augustine Island, a rocky islet seven miles in diameter and 4,000 feet high, in Kaminshak Bay on Cook Inlet. But eight years ago visitors reported that Augustine had reduced its area to zero, and disappeared into the bay.

The most capricious "jack-in-the-box" of the Aleutian chain is famous Bogoslof Island (illustration, next page), northwest of Dutch Harbor, which pops up and down at intervals, appearing with an altered silhouette every time.



UMI

for the migrating family at one end and a shelter for livestock at the other. The smaller flatboat was a squat houseboat with a flat roof which served as deck, dancefloor, sun parlor, or laundry, as the family's needs dictated.

These motley, homemade "flivvers of the river" built up a western population that finally supported enough steamboat "limousines" to banish the homelier craft. Just one century ago, the little port of St. Louis received almost an equal number of steamboats and keelboats, less than 150 of either. Four years later, the St. Louis waterfront saw 647 steamboats, and reported no keelboats at all.

The trim lines of the white-and-gilt steamboat, its reckless speed of 18 or 20 miles an hour, the skill of the demi-god pilots intrigued the 1840's as bigger and better airplanes fascinate people today. Mark Twain chose his literary name from steamboat terminology. Abraham Lincoln patented "an apparatus to lift vessels over sand bars and snags." Audubon took a steamboat ride to explore the bird beauties of the Mississippi and Missouri valleys.

The victory of the *Robert E. Lee* over the *Natchez* in their three-day race over the 1,200-mile river course from New Orleans to St. Louis was not the only steamboat story that entered American folklore. The burning of the *Ben Sherod* in the May midnight, the explosion of the *Helen McGregor,* the collision that ripped off the cabins of the *Monmouth* and spilled hundreds of doomed passengers into the river were talked about for years on the levees and the plantation landings. The floating "showboat" was welcomed at every wharf, as well as the floating store. Since railroads and airlines have taken away the passenger and fast freight business of the Mississippi, slow freight still supports a shipping business valued above a billion and a half dollars.

Note: For the Mississippi valley, see the National Geographic Society's Map of the United States, issued as a supplement to the December, 1940, *National Geographic Magazine.*

**Bulletin No. 3, December 15, 1941.**

*Photograph by Ewing Galloway*

**LITTLE SISTERS OF THE *ROBERT E. LEE* PADDLE IN MISSISSIPPI SHALLOWS**

**While tugs and towboats, hauling trains of laden steel barges, move much of the heavy cargo traffic on the Mississippi today, a number of steamboats still gather up small shipments at plantation landings or steer into shallow bayous where vessels of deeper draft cannot go. Except for the greater power of their steam engines, they differ little from the lordly steamer such as the oft-sung *Robert E. Lee* that fired the imagination of the preceding century. The *Amy Hewes* was photographed in the Acadian reaches of the lower Mississippi, in Louisiana's Bayou Teche. The noisy paddle wheel which was a feature of all the old steamboats, whether at the side or the stern, was patented in 1814 by Nicholas I. Roosevelt, who helped Robert Fulton build boats.**

# GEOGRAPHIC SCHOOL BULLETIN

*Published Weekly by*

**THE NATIONAL GEOGRAPHIC SOCIETY**

**(Founded in 1888 for the Increase and Diffusion of Geographic Knowledge)**
**General Headquarters, Washington, D. C.**

## India, A War Chest of the British Empire

WHEN the first Agent-General from India to the United States recently reached Washington, East met West again—on a diplomatic basis. The exchange of representatives between America and India emphasizes the importance of this rich Asiatic territory—long prized by Britain—to the rest of the world.

Vast, complex India, which contributed heavily to the Allies during the first World War, is one of Britain's richest war chests in the present conflict. Its location makes it a possible route for supplies bound for Russia. Discussion of practical roads, however, would indicate that such supply lines, so far, are considered of minor importance.

### Millions of Men for Work or War

The huge V-shaped peninsula of India, with an area of more than a million and a half square miles and a population of about 365,000,000, holds a wealth of raw materials. Crowded millions, who in lean years have presented troublesome economic problems, in wartime are a reservoir of man power. For work or battle, Indian troops in 1939 and 1940 were stationed at points as far apart as France and Singapore, Egypt and Great Britain. A huge Indian Army is planned to be mechanized and equipped from the nation's factories.

Overwhelmingly agricultural, India grows enough wheat and sugar for its own needs, and produces also large crops of rice. Cotton and jute, wool, hides, tea, and vegetable oils are foremost among the products of farm and forest.

Once India was a land famed chiefly for its spices, ebony, perfumed oils, and "honey from reeds" (sugar cane). Today it supplies such industrial materials as iron, coal, and steel; manganese, tungsten, chromium, mica, petroleum, copper, building stuffs, and bauxite—source of aluminum vital in airplane manufacture.

### More Women Workers

Although India must still import the more complicated machine tools and high-grade industrial steel, chemicals, and lubricants, the nation long famed for its handicraft arts is taking pioneer steps in the production of such articles as drilling and shaping machines, lathes, furnaces, and other plant equipment.

At the outbreak of the war, more than fifteen million workers, including many women, were estimated to be engaged in manufacturing. In an active steel industry, production had risen from 113,000 tons in 1920 to more than a million tons in 1939. Pig iron output during the period rose from some 300,000 tons to nearly two million tons. Textiles woven in 1938-39 weighed 920,000,000 pounds.

After two years of the war effort, India now turns out quantities of guns and shells, armor plate, fighting vehicles, copper wire, "tin hats," boots, and uniforms. The establishment of an aircraft factory has been announced, as well as acceleration of the shipbuilding program, already producing vessels for the Royal Navy.

In 1940, Great Britain received an estimated 125,000 pairs of army boots a month, from India, and placed orders there for a billion sandbags—enough to stretch nearly twenty times around the world at the Equator.

Despite the natural wealth of India, and the war boom in the military industries, this Eastern country is plagued by many economic problems. The loss of continental European markets and the dangers of transportation to the mother country have cut foreign trade. Some of this loss has been made up by increased



UMI

When the island of Tuanaki, in the Cook Island group in the Pacific, disappeared in 1836, more than 13,000 inhabitants are estimated to have lost their lives. Natives who had left the island early on their daily fishing trip returned at evening to find an unbroken expanse of water where their homes had been.

Stories are still told of persons who heard the tide-rung church bells of submerged villages off the Netherlands coast. The villages were on a fertile island near the mouth of the Scheldt, but in 1530 the island vanished overnight.

Some years ago, a new island rose dripping in the vicinity of Trinidad. It was fairly large and the Trinidad authorities took possession, planting the British flag. A few days later it returned beneath the waves.

Many islands spotted on early maps, for which mariners have later looked in vain, have been called disappearing islands. But they are also open to suspicion as having been possibly floating vegetation, dimly seen icebergs, or pure fancy.

Lost from maps in this vague manner are such insular names as Mayda, St. Brendan's Island, the Portuguese Antillea or Isle of the Seven Cities, and the French Isle Verte. They were perhaps similar to Ireland's nine magic islands which, legend has it, appear every seven years; being enchanted, say folk tales, they may be seen but never reached.

Note: Sites of the disappearing islands can be located on the National Geographic Society's new Map of the World, which appeared with the December, 1941, issue of the *National Geographic Magazine.*

The phenomenon of these islands is discussed in the *National Geographic Magazine* for December, 1928, in the article, "Falcon, the Pacific's Newest Island."

**Bulletin No. 4, December 15, 1941.**

*Photograph from Captain J. H. Quinan*

**HOW TO BUILD AN ISLAND, IN ONE EXPLOSIVE LESSON**

**The Pacific, less than four miles from Bogoslof Island northwest of Dutch Harbor in the Aleutian chain, is 6,000 feet deep. But a submarine volcano builds up the island until its hills sometimes reach 500 feet above sea level. The Russian admiral who gave the island his name discovered it in 1790; then it was a single peak rising from the water. A century later two peaked islands stood in its place. At the beginning of the 20th century a third island pushed up between them and made Bogoslof a single unit again. But in 1907 the volcano blew up and blasted the island into separated fragments. Smoke rolling from the crater is an occasional reminder that the volcano may at any time push Bogoslof higher above the horizon, or blast it out of sight.**

business with the United States, with members of the British Empire, and with Japan, although the latter nation has curtailed some purchases.

Besides its war-born economic problems, India has certain social and political headaches, arising from the confused mixture of racial and religious groups, as well as from its enormous size and geographic complexities. The campaign for independence, too, continues to be a factor. At present the political patchwork known as India comprises British India, with 11 Governors' Provinces and five Chief Commissioners' Provinces, and 583 Indian States governed by native princes.

Note: For map study see the National Geographic Society's Map of the Indian Ocean, issued as a supplement to the March, 1941, *National Geographic Magazine*, and the recently released Map of the World, issued with the December, 1941, number of the *Magazine*.

See also "In the Realms of the Maharajahs," in the December, 1940, issue of the *National Geographic Magazine*.

GEOGRAPHIC SCHOOL BULLETINS containing articles on India include: "Kashmir Enforces Beef Ban on Beef-Eating Visitors," December 4, 1939; "India's Vast Patchwork Makes Stubborn Problem for Britain," November 13, 1939; and "Rajkot, Where Gandhi's One-Man Revolt Took Place," March 27, 1939.

**Bulletin No. 5, December 15, 1941.**

*Photograph by Lawrence Copley Thaw*

**FOR FACTORY-MADE NECESSITIES, INDIA ALMOST FORGETS HAND-MADE LUXURIES**

**Kashmir shawls, carved ivory, polished gems, sheerest cotton veils, swords honed razor-sharp, and hand-woven rugs were among the rich wares with which India dazzled the luxury trade of earlier centuries. But modern factories turn out bullets and sandbags by the million. The Nizam of Hyderabad, native prince of India's second largest Indian State, tries to preserve the handicraft skill of his subjects. A trade school teaches them weaving, dyeing, embroidering, and metal working. Cloth of gold and textiles of pure silver thread are woven on small looms in the traditional Indian manner: when the delicate process calls for more hands than the workman has, a toe is used.**

UMI